Synchronous communication technologies for language learning: Promise and challenges in research and pedagogy

Journal Item

Breffni O'Rourke* and Ursula Stickler

Synchronous communication technologies for language learning: Promise and challenges in research and pedagogy

DOI 10.1515/cercles-2017-0009

Abstract: We propose a definition of synchronous communication based on joint attention, noting that in certain mediated communication settings joint attention is a matter of perception rather than determinable fact. The most salient properties of synchronous computer-mediated communication (SCMC) are real-time pressure to communicate and a greater degree of social presence relative to asynchronous communication. These properties underlie the benefits and challenges of SCMC for language learning, which we discuss under three headings: (1) SCMC as learning tool; (2) SCMC as target competence; and (3) SCMC as setting for learner dialogue, intracultural and intercultural. We survey research themes in SCMC and preview the contributions of the Special Issue. Finally, we identify questions for future research.

Keywords: synchronous computer-mediated communication, social presence, telecollaboration, focus on form, intercultural communication

1 Introduction

Computer-mediated communication (CMC) is by now a staple of research in language acquisition and pedagogy, just as it has become central to the social and professional lives of many millions of people worldwide. In parallel with this ascent, certain distinctions that once seemed clearcut have begun to blur, as communication platforms increasingly offer a mixture of modes, permitting users to choose between combinations of text, audio and video in synchronous or asynchronous modes, to communicate privately or publicly, and to interleave conventional text with images, animations, and emoticons.

This Special Issue arises out of the belief that even in such a luxuriant communicative ecosystem, the distinction between synchronous communication

***Corresponding author: Breffni O'Rourke,** Centre for Language and Communication Studies, Trinity College Dublin, Ireland, E-mail: breffni.orourke@tcd.ie
Ursula Stickler, Faculty of Wellbeing, Education & Language Studies, The Open University, UK, E-mail: ursula.stickler@open.ac.uk

(SC) and asynchronous communication remains analytically and practically important, i. e., in terms of both communicative affordances and pedagogical consequences. We will argue that SC, whether face-to-face or mediated, has always occupied a special niche in the communicative landscape; that this role has specific cognitive, cultural, linguistic and interactional consequences; and that mediated SC therefore offers special opportunities, but also special challenges, to practice and research in language teaching and learning. Further, though there are considerable differences between synchronous platforms, there is also enough commonality that certain analytical frameworks and research methods are likely to be found useful across the board.

The next section will define what we mean by synchronous communication, and identify its most salient properties. Section 3 will look in more detail at the promise and challenges of SC in language and intercultural learning. Section 4 will turn to research frameworks, and Section 5 will introduce the contributions to the special issue and identify questions for further investigation.

2 Properties of synchronous communication

As a starting point we define synchronous communication as dialogic communication that proceeds under conditions of simultaneous presence (co-presence) in a shared communicative space, which may be physical or virtual. This definition clearly includes video and audio conferencing as well as face-to-face talk, but is intended to include also text-based chat systems that involve private production of messages before instantaneous posting (termed "quasi-synchronous computer-mediated communication" by Garcia and Jacobs 1999, and "delayed synchronous communication" by Hoven 2006). Asynchronous communication, on the other hand, arises when interlocutors do not simultaneously share the communicative space, as in email or postal correspondence.

It might be objected that the synchronous / asynchronous distinction is one of degree rather than kind: perhaps an email exchange, for example, involves a temporally extended communicative space in which both correspondents can be thought of as virtually co-present. In this view, asynchronous communication is simply SC slowed down. We could try to rescue the distinction by reference to the interactive shaping of the dialogue, in which conversational contributions are formulated in part in response to those of our interlocutors – what Van Lier (1994; 1996) called *contingency*. But this is true of asynchronous communication too: blog comments, for instance, are often composed in light of one or more previous comments, and so responsiveness to one's interlocutor's contributions

is not a distinguishing feature. Nor is personal connection the prerogative of SC. The research of Walther (Walther et al. 2015) suggests that users adapt creatively to the properties of the communicative medium, and in particular that, given sufficient time, mediated communicators can and frequently do find ways to personally connect with each other in the face of apparent technological obstacles.[1]

We suggest that rather than mutual responsiveness or personal connection, we must look to joint attention as the key property of SC. Physical co-presence is self-evidently the earliest context for human interaction, ontogenetically and phylogenetically. For conversation analysts, talk-in-interaction is "a primordial site of sociality" (Schegloff 1992). Indeed, Schegloff portrays intersubjectivity itself – "one of the (largely presupposed) preconditions for, and achievements of, organized social life" – not as "more or less identical contents of separate minds" (p. 1296), but instead as a procedural accomplishment within local interaction; that is, intersubjectivity is brought about in and through talk. Tomasello (2014) locates the roots of shared intentionality – the defining property of human cognition, in his view – in *joint* intentionality, a phylogenetically prior form of mutual engagement emerging in shared, co-present activities like hunting and foraging.[2]

In light of these considerations, we propose a social-psychological characterisation of SC. We suggest that simultaneous occupancy of the communicative space makes SC a joint activity, in the sense that there is both individual and joint (mutually known) attention to unfolding meaning. This kind of communication is a fundamental human experience and one in which intersubjectivity is especially salient to participants. Asynchronous communication shares with SC such properties as contingency, perspective-taking (Tomasello 2014), and attention to pragmatic principles such as politeness, cooperativeness, and relevance (Brown and Levinson 1987; Grice 1975; Wilson and Sperber 2012), but it lacks the element of joint attention and can therefore be viewed as a communicative project made up of a series of individual activities and characterised by successive phases of individual attention to meaning by different participants.

Having argued that there is a qualitative difference, we must acknowledge that communication is not inherently synchronous or asynchronous just by virtue of the platform supporting it (see Androutsopoulos 2007): the intentions

1 The epistolary book *84 Charing Cross Road* (Hanff 2002) provides a well-known example.

2 Indeed, Tomasello et al. (2007) argue that the human eye, with its white sclera, evolved to advertise gaze direction, and they take this as evidence that early humans engaged in fundamentally cooperative social interactions. They cooperated best, in other words, when they could literally see the whites of each other's eyes.

of the software designers are not decisive. What counts are the intentions, attention and perceptions of the users. It is true that, for example, web-based chatrooms were clearly designed to be used synchronously, but the instant messaging apps that have superseded them in popularity, such as WhatsApp, Facebook Messenger and Skype Chat, may in principle be used either synchronously or asynchronously; that is, there may or may not be a delay between receiving and reading any given message, and likewise sending of responses may or may not be delayed. These intentions, attention and perceptions may be shared between participants, or they may not: one user might give full attention to the communication while the other does not, and likewise, their perceptions of the partner's attention might or might not be accurate. In this way, a psychological view of SC accounts for the apparent indeterminacy as to synchronous / asynchronous mode in some platforms: whether an online messaging conversation is perceived as asynchronous or synchronous communication is in the end a question of perception, rather than a readily observable fact. Neither is it necessarily an inherent property of the platform used.[3]

The shift from computer to personal device (tablet or smartphone), in particular, has played a key part in the colonisation of the communicative landscape by CMC, assisted by the multimodal capabilities of such devices. The advent of mode-agnostic software platforms (where by *mode* we mean in this case synchronous / asynchronous) is traceable to a number of developments, not least the interrelated phenomena of mobility (since interlocutors are not tied to a particular location, messaging conversations can be initiated at any time and reading and response can be delayed), multitasking (participants may shift their attention between messages and other device- or non-device-based tasks), and push notifications (which make instant responses possible, though not necessary).

Technology-mediated SC shares with face-to-face interaction some of the sense of shared activity which is fundamental to face-to-face communication. Along with this come various other properties of the face-to-face setting: pressure to respond in a timely fashion to interlocutors' contributions; turn-taking structure; rapid negotiation of meaning; and a tendency towards phatic communication, given the obligation to keep conversation moving and maintain social connection (O'Rourke and Schwienhorst 2003). These properties are related to social presence (Short et al. 1976), the "perception of others as real

3 We note that it is not a new situation to teachers to be uncertain whether they have truly established joint attention with their learners.

and present" (Baym 2015: 60).[4] Oztok et al. (2013) note that several studies have found synchronous communication to be higher in social presence than asynchronous discussion, a relatively isolating format. This is a finding that would follow naturally from our conceptualisation of SC as joint communicative activity.

To summarise, we see SC as a form of communication that is perceived by participants as joint communicative activity, and which partakes of the intersubjective nature of face-to-face communication even when technologically mediated. The interpersonal element is highly salient to interlocutors, and is manifested in turn-taking structure and real-time pressure to maintain connectedness. Recently emerging communication platforms, frequently embedded within social media, may be used in more synchronous or more asynchronous modes, and offer a range of semiotic resources, including video, audio, text, images, animations, emoticons and emoji. In the next section we will consider the pedagogical implications of SC.

3 Pedagogy

Little (1998) observed that media and technologies can be used in language pedagogy either as a tool for learning or as a target competence: students might be asked to read newspaper articles, for instance, as a source of input for vocabulary and grammar acquisition, or because they needed to be able to deal with journalistic register. The ascent of CMC was scarcely foreseeable at that time, and synchronous CMC (SCMC) in particular was a niche activity and research area. An argument for viewing SCMC as a target competence would therefore have been difficult to sustain: it was more credible to view it as a learning tool. In this section we will examine what the affordances of SCMC have to offer to language pedagogy as a learning tool and as a target competence, but also in a third role, as a setting for social engagement between learners.

3.1 Affordances of SCMC for language learning

Computer-mediated communication has brought enormous benefits to research into verbal interaction: masses of data have become available in easily accessible

4 The exact nature of the relationship between these properties and social presence cannot be pursued here. We note only that they might create the sense of social presence or they might be constitutive of it.

formats, transforming the way researchers can investigate language learning through real-life exchanges. Much SCMC research in the cognitive-interactionist tradition of second language acquisition has focussed on text-based communication. Often the constructs of focus on form and noticing motivate the work; researchers investigate whether features such as slower overall conversational tempo, visual mode, and persistence of utterances, relative to face-to-face conversation, lead to greater opportunities for attention to form (e. g., Lee 2001; Lee 2002; O'Rourke 2005; Sauro 2011; Smith 2005; Smith 2010; Smith et al. 2003; Smith and Gorsuch 2004; Toyoda and Harrison 2002; see also the articles by Renner and Black in this issue). In a 2011 review of 97 studies, Sauro found that 48 investigated the promotion of grammatical competence; the next biggest category, with 31 studies, was strategic competence (Sauro 2011). A recent meta-analysis (Ziegler 2016) of studies comparing face-to-face with SCMC found "a small advantage for interaction in SCMC on measures of overall L2 learning outcomes, with additional analyses indicating a small advantage for SCMC interaction on productive and written measures and a small advantage for FTF [face-to-face] interaction on receptive and oral learning outcomes" (pp. 553–554). A more general meta-analysis looking at SCMC effects on SLA in general (Lin et al. 2013) found that "text-based SCMC could make a larger difference on SLA than other means of communication". Another strand of research has looked at whether text-based SCMC can benefit oral fluency (Payne and Whitney 2002; Satar and Özdener 2008; Weininger and Shield 2003). Researchers have begun to explore audio and video conferencing more intensively as these technologies have become established (Hampel and Stickler 2012; Hung and Higgins 2015; Lamy 2004; Satar and Özdener 2008; Yanguas 2010). Graphical virtual environments like Second Life have also attracted attention (Panichi 2015; Wigham and Chanier 2013; see also Canto and Jauregi in this issue), as have, to a lesser degree, Massively Multiplayer Online Games (Bytheway 2015; Thorne et al. 2009).

3.2 SCMC as target competence

Apart from encompassing new technologies, what characterises much recent research is a focus on the nature of participation and discourse in these synchronous platforms, frequently from the perspective of sociocultural theory (Thorne 2015; Thorne et al. 2015) or using conversation analysis (González-Lloret 2011). In so far as they acknowledge SCMC discourse as a *sui generis* communicative environment and investigate it as such rather than as just a source of L2 input, this research focuses on digital competence as well as language learning.

The ascent of social media and complex ensembles of modes within individual platforms has not merely incremented society's store of media and communication technologies, but added urgency to certain reconceptions of communication itself, such as multimodality and multiliteracies. Multimodality (Kress 2010) is a theory of communication which denies the pre-eminence of language, situating it instead as just one of a range of semiotic resources, combinations of which are pressed into meaning-making service on any given occasion. Similarly, the related concept of multiliteracies embodies the claim that to be literate means not merely to command certain linguistic and technical skills, some of which become standard repertoire of the culture (Krämer 2010), but to be able to make meaning "as a form of design or active and dynamic transformation of the social world" (Cope and Kalantzis 2009: 166). The consequences for our understanding of the enterprise of foreign/second language education are far-reaching, to the extent that they are accepted: as foundational a construct as communicative competence, itself a response to the narrowness of the construct of *linguistic* competence, requires at least expansion, if not wholesale revision. Researchers have begun to rise to this challenge, in respect of both theory (e. g., Kramsch 2006 on "symbolic competence") and practice (e. g., Thorne and Reinhardt 2008 on "bridging competences").

While more language-centred conceptions of communication, such as those of pragmatics and discourse analysis, focus on abstract units of linguistic and contextual meaning – illocutions, implicatures, negotiation of meaning episodes, face-threat mitigation, etc. – pedagogies rooted in multimodality and multiliteracies stress meaning as it relates to learner (and indeed teacher) identities: "There is growing recognition that when a learner engages in textual practices, both the comprehension and the construction of the text are mediated by the learner's investment in the activity and the learner's identity" (Norton 2013: 24–25). Thorne et al. (2015) review work on identity in educational and non-institutional contexts. Relatively few of the studies they discuss are concerned with synchronous communication per se, though certainly there are synchronous functions to be found in the social networking sites, online fandom communities and multiplayer games researchers have examined.

The notion of "target competence" in relation to SCMC has encompassed certain linguistic peculiarities of SCMC, the appropriate use of emoticons, the oddities of turn-taking, the pragmatics of anonymous interaction, and so on. Today's researchers are just as likely to identify as target competences the exercise of agency online, and the ability to construct and perform identity through multiple semiotic resources (see, e. g., Wigham in this issue). This reflects an anti-reductionist turn in applied linguistics broadly linked to the "social turn" (Block 2003; Firth and Wagner 1997), and it must be conceded

that constructs like these are not easily defined, observed and measured. What they lack in concreteness they seek to make up for in the kind of depth, complexity, nuance – in short, realism – that an applied field must ultimately concern itself with.

3.3 Facilitating dialogue

Computer-mediated communication is of course principally a means of bringing people together. Its learning affordances presuppose its function as a virtual setting for pedagogical interaction between learners, or between learners and teachers. A great deal of the research focusing on interaction per se in language learning has examined communication within established, local class groups, i. e., among learners already acquainted with each other, frequently sitting in the same room while they interact via SCMC. There is necessarily something artificial about such set-ups, though probably no more artificial than other, more common classroom activities such as role plays or information-gap tasks. Clearly the supposition, for both the teacher and the students, must be that SCMC promises some kind of added value through its affordances, because otherwise, why not simply talk? An early research finding was the apparent equalisation of participation across individual students compared to face-to-face classrooms (Fitze 2006; Kern 1995), with usually reticent students more inclined to contribute. Peterson (2010) and Collentine (2010) discuss the affordances of SCMC for task-based dialogue in SCMC, and in the same collection (Thomas and Reinders 2010) Stockwell (2010) addresses the role of multimodality in in-class SCMC.

In these situations, a technology designed for distance communication is employed for communication between learners who are personally, culturally, and even physically close to one another. In contrast, the burgeoning area of what is variously known as telecollaboration, virtual exchange, or online intercultural exchange, involves learners of different languages and cultures, usually in different geographic locations, meeting to engage in learning dialogue which otherwise would not have happened (Guth and Helm 2010; O'Dowd 2011; O'Dowd 2016). Though virtual exchange often involves a mix of asynchronous and synchronous activities, it tests synchronous communication to its limits. The key questions shift from ones of language, discourse, and pragmatics, to ones of interpersonal and content engagement: can synchronous mediated communication support interpersonal, interlingual, intercultural encounters? Is a truly shared learning experience possible over a computer network? Is the medium rich enough to convey the nuances of meaning essential in such potentially high-stakes interactions?

Virtual exchange has many possible applications: preparation for physical student mobility; virtual student mobility in cases where physical mobility is impossible; practice for international professional collaboration; training in intercultural communication; and as one element in blended language or intercultural courses, among many other things things (see, e. g., Fernandez and Pozzo in this issue). Perhaps most urgently, it is being deployed to promote international understanding through projects like Soliya, whose mission is "to empower young people to establish more effective, cooperative, and compassionate relations within and between their societies by providing high quality global education that combines the power of dialogue with the reach of new media technologies" (www.soliya.net), and the Sharing Perspectives Foundation ("to initiate, stimulate and facilitate international cross-cultural dialogue and collaboration to foster knowledge and understanding by utilizing new online communication platforms"; www.sharingperspectivesfoundation.com). Recent developments in telecollaboration in higher education include the launch of the UniCollaboration organisation (www.unicollaboration.org), its associated online platform supporting telecollaborative partnerships (uni-collaboration.eu), and a biannual conference series on telecollaboration in higher education.

The role of videoconferencing is by now well established within telecollaboration: Helm's (2015) report on a survey of telecollaboration in European higher education institutions found that videoconferencing was the most widely used synchronous tool – which, she notes, "may be surprising if we consider the challenges and cognitive demands that meaning making in multimodal environments has been found to place on learners" (p. 206; but see Wigham in this issue for reasons why communication via videoconferencing might be easier for language learners). O'Dowd (2016) likewise highlights the increasing prominence of videoconferencing in telecollaborative practice and research in his review of trends, based on an examination of the papers presented at the Second Conference on Telecollaboration in Higher Education (Jager et al. 2016).

Dialogue can equally take place through asynchronous communication. In particular, threaded discussion forums of various kinds have been claimed to support critical thinking in content-focused dialogue (Abrams 2005; Perkins and Murphy 2006; Zhu 2006). The promise of synchronous communication for dialogue, on the other hand, may lie in its capacity to support interpersonal and affective communication, as well as other aspects of social presence (Satar, 2015; Tu and McIsaac 2002). For this reason, the role of SCMC is sometimes seen as a relationship-sustaining complement to the more cognitively oriented asynchronous or classroom elements of a pedagogical setting (Oztok et al. 2013). This makes learning how to use SCMC effectively an important

demand for the training of future language teachers (see, e. g., Cappellini and Azaoui and Shi et al. in this issue).

4 Research themes

Synchronous technologies have been evaluated and studied for the purposes of language teaching and learning since they were first developed. The following areas have attracted the majority of attention, although they do not comprise a full list of aspects investigated: functionality of tools, (multi-)modality, teacher skills, social presence, and attention.

Functionality of tools has been studied for practical purposes and to enhance our understanding of learning processes (Abrams 2003; Hassan et al. 2005; Kötter 2001; Shield et al. 2000; Wang 2004; Wang and Chen 2009). These studies have led to improved online pedagogy but have also given rise to further issues, for example, the need for special skills to teach languages online (Beaven et al. 2010; Hampel and Stickler 2005; Kear et al. 2012; Kozar 2016; Lewis 2006; Rosell-Aguilar 2006; Stickler and Hampel 2015; Stickler and Hauck 2006); or the influence of specific features of the online tool on learning interactions (Hampel and Stickler 2012; Stickler and Shi 2013; Stockwell 2007; Yamada and Akahori 2009).

Social presence and attention are two sides of the shared communicative space: the study of social presence expressed and perceived in synchronous exchanges (Satar 2010; Satar 2015; Yamada and Akahori 2007) has been an important extension of the research undertaken by Anderson, Garrison and their colleagues in asynchronous environments, specifically forums (Anderson et al. 2001; Garrison et al. 2001). What students pay attention to in online environments during synchronous exchanges or language classes has been studied using eye-tracking technology (O'Rourke 2008; O'Rourke et al. 2015; Smith 2010; Stickler and Shi 2015).

Considering our definition of synchronous online language learning, there are several areas that now need urgent attention if we are to advance our understanding of communication in this specific context and its influence on learning. To begin with, we need to better understand joint attention: in face-to-face synchronous encounters we constantly check and reassure ourselves and each other of continuing participation in the dialogic exchange by means of various gestures and non-verbal cues. While SCMC participants must trust that the other party is paying attention, SCMC researchers can call on objective evidence. Studies of attention focus, for example using eyetracking technology,

can show whether and how the learners' attention follows teacher's instructions (see, e. g., Shi et al. in this issue), and whether and how shared attention is constructed and communicated in online classes.

Specific to learning in synchronous online spaces is a shared understanding that the communicative encounter will be used to enhance specific skills or knowledge. In language tutorials a focus on interactive speaking skills can be a particular challenge, as learning has to combine information gathering, understanding and skills practice (see Adinolfi and Astruc in this issue). The functionalities of synchronous online tools need to be understood thoroughly to enable the support of language teaching (see Shi et al. in this issue).

Learning that takes place outside of structured classrooms (Benson and Reinders 2011), for example in the form of intercultural exchanges, deserves our attention. As social encounters in virtual spaces become more widespread and, particularly for younger learners, form part of their natural landscape of communication, these virtual learning encounters offer increasingly authentic places for practising not just the language but also the specific communication skills needed in online synchronous platforms. Using synchronous tools allows language learners to improve their digital skills, their intercultural communicative competence and, at the same time, their language by intentionally sharing a world (digital, virtual, cultural) with their communication partners across borders.

These themes are just some of the possible directions in which synchronous online language learning research can take us. The teaching and learning of languages online is by now far enough developed to offer a rich variety of approaches and practices; data is accessible and easier to collect and analyse than equivalent face-to-face classes; and there are established methods to help us investigate the issues. Amongst the most promising are eyetracking, Social Network Analysis, and discourse and conversation analysis, for synchronous short-term online encounters; and reflective, activity-theoretic and ethnographic techniques for long-term studies.

This Special Issue presents a range of studies that investigate from a range of perspectives what we have defined as "dialogic communication that proceeds under conditions of simultaneous presence (co-presence) in a shared virtual communicative space for the purpose of language learning". We turn to these in the next section.

5 The special issue

This Special Issue of Language Learning in Higher Education brings together experts in the field of synchronous online language teaching and learning with a wide range of research interests.

When desktop videoconferencing was first used for language learning the benefits of being able to speak virtually with learning partners in different countries became obvious immediately: whole-class interaction, one-to-one eTandem pairing, intercultural dialogue, and language teacher training became more natural, easier to organise, and more authentic through the use of Skype and similar readily available software. Not surprisingly then, six of our eight contributions to this Special Issue use some form of telecollaboration as a basis.

In a systematic comparison between different formats of group-based telecollaboration between Dutch learners of Spanish and their expert Spanish peers, Canto and Jauregi analyse the use of video communication and the virtual environment Second Life. Their results reveal that both groups out-performed students who did not have this opportunity for authentic social interaction with native speakers.

It is not only the software that can make a difference but also the pedagogic setting. In another comparative study, Cappellini and Azaoui evaluate a Tandem task between Chinese and French language learners on one hand, and a telecollaboration between French trainee teachers and Irish learners of French (the ISMAEL project) on the other. Their focus is on *sequences of normative evaluation*, a form of feedback that is expected to be more frequent in settings where one party is clearly designated as teacher and the other as learner. Although this assumption was confirmed in Cappellini and Azaoui's study, they also found that, contrary to expectations, trainee teachers did not use more varied modality than expert peers.

A fine-grained linguistic and multimodal analysis of lexical explanation sequences is undertaken by Wigham. Rooted in social semiotics, her study looks at telecollaborative interactions between business students learning French and trainee teachers of French as a Foreign Language. Her study, which like Cappellini and Azaoui draws on the ISMAEL corpus, shows that any research reducing the data to verbal aspects only would fail to account for the full range of aspects of language teaching encompassed in synchronous videoconferences. Both learners and trainee teachers employ a number of modes and combinations of modes to signal and support understanding. Research such as this on developing communication strategies should inform the training of successful online language teachers.

Our next contribution is characterised by an intercultural focus: Fernandez and Pozzo investigate Danish learners of Spanish communicating with Argentine students of history. As is often the case in group-based telecollaboration, the gains for both sides were not exactly equivalent: the Argentine students, who were preparing to become teachers of history in their own country, gained some valuable practice in communicating with non-native speakers; in the best cases, making them reflect on the need to use simplified language and provide clear

explanations. The Danish learners, on the other hand, gained more immediate benefits through language practice and gathering information on Argentine recent history.

One-to-one Tandem, as opposed to group-based telecollaboration, has a number of advantages: it can individualise learning, reduce the anxiety of speaking in a group, encourage learners to take responsibility for their own learning, and allow them to take on a teaching role in the part of the Tandem exchange where they become expert informants for their partner. In research terms, eTandem or virtual Tandem exchanges also provide rich and easily accessible data on informal learning, peer interaction, language development, and relatively naturally occurring pragmatics of online interactions. For these reasons, eTandem has become a well-studied method of language learning and is equally well represented in our collection of articles.

Renner's case study of Tandem pairs looks at six beginner and intermediate learners located in Austria and China. She investigates language related episodes and negotiation of meaning in audio-video conversations. Her findings reveal that code-switching between Chinese and German is more frequent at the lower proficiency level, and that "mode switching", the use of written text-chat during mainly spoken interaction, supports particularly discussions that focus on linguistic form.

Also exploiting the richness of data provided by one-to-one eTandems, Black shows how extending a topic and bringing it to a close can be a task managed quite differently by different learners. Her investigation of interactional competence uses the fine-grained tool of conversation analysis. Her study shows that language learners have recourse to topic management techniques taken from their mother language, and can successfully employ these in interactions with their Tandem partners.

As mentioned above, one of the main benefits of synchronicity in online language teaching is the opportunity for interactive speaking practice. This can be scaffolded by teachers as well as peers and is the focus of the remaining two research articles. Adinolfi and Astruc's investigation of pedagogic translanguaging used by teachers in Spanish tutorials shows how teachers carefully adjust their translanguaging practices to the increasing L2 skills of their students. Towards the end of the eleven-month-long course investigated here, teachers reduce their code-switching and use of English. Adinolfi and Astruc encourage course designers to creatively employ pedagogic forms of translanguaging to support learners rather than adhering to conventional beliefs about an exclusive use of the L2 in the (online) classroom.

Shi, Stickler, and Lloyd's eyetracking study of teachers' behaviour during beginners' online video conferencing tutorials focuses on the multiple and

interrelated skills necessary to facilitate language learning in multimodal online environments. Their combination of eyetracking data with stimulated reflections highlights the fact that increasing technical skills, experience and confidence in the use of the online tools can free teachers' time to focus on more social and creative aspects of synchronous online teaching.

The articles collected in this Special Issue on "Synchronous communication technologies in language and intercultural learning and teaching in higher education" show that the topic is current and well-researched. In the collection we find a variety of settings, from tutor-led, fully online tutorials to relatively independent eTandem pairings; a multitude of perspectives and methods used to investigate them; and a range of questions asked, from in-depth detailed studies of language development to evaluation of intercultural and pragmatic aspects learned.

Of course, although the Special Issue showcases an impressive range of studies, there is still plenty of work to do in this promising and fast-moving field. To mention just a few of the questions worth investigating in future:

- What happens to L2 learners in independent settings, in formal teaching, in scaffolded or facilitated tutorials?
- What language features and what aspects of intercultural and interactional competence are best supported by online synchronous learning?
- How can we promote critical engagement with tasks and topics in synchronous environments?
- How can we facilitate dialogue around intercultural issues that is simultaneously critical and mutually respectful?
- How can teachers best be prepared for the difficult task of supporting online language and intercultural learning in multimodal, synchronous environments?
- What changes or developments in software and hardware are required or desirable to best scaffold learning in different settings?

We have argued that the key defining feature of synchronous communication is joint attention to the communicative event, while acknowledging that in some settings, notably quasi- or semi-synchronous text-based interaction, joint attention is a matter of communicators' perception rather than determinable fact. Nonetheless, perceived joint attention brings with it the characteristic social presence of face-to-face communication. Three kinds of benefit follow from this for language and intercultural learning: (1) opportunities for attention to language form and joint negotiation of form and meaning under conditions of real-time communicative pressure; (2) opportunities for multimodal meaning-making of a kind that has become an important feature of the communicative landscape; and (3)

opportunities for learning dialogue, including intercultural dialogue, in a setting that permits affective interpersonal connections. These are themes to which we believe the articles in this Special Issue make a significant contribution.

References

Abrams, Z. I. 2003. The effect of synchronous and asynchronous CMC on oral performance in German. *Modern Language Journal* 87(2). 157–167.

Abrams, Z. I. 2005. Asynchronous CMC, collaboration and the development of critical thinking in a graduate seminar in applied linguistics. *Canadian Journal of Learning & Technology* 31(2). 23–47.

Anderson, T., L. Rourke, D. R. Garrison & W. Archer. 2001. Assessing teaching presence in a computer conferencing context. *Journal of Asynchronous Learning Networks* 5(2). 1–17.

Androutsopoulos, J. 2007. Neue Medien – neue Schriftlichkeit? *Mitteilungen des deutschen Germanistenverbandes* 54(1). 72–97.

Baym, N. K. 2015. *Personal connections in the digital age*. Cambridge: Polity.

Beaven, M., M. Emke, P. Ernest, A. Germain-Rutherford, R. Hampel, J. Hopkins, M. M. Stanojevic & U. Stickler. 2010. Needs and challenges for online language teachers – The ECML project DOTS. *Teaching English with Technology: A Journal for Teachers of English* 10(2). 5–20.

Benson, P. & H. Reinders. 2011. *Beyond the language classroom: The theory and practice of informal language learning and teaching*. Basingstoke: Palgrave Macmillan.

Block, D. 2003. *The social turn in second language acquisition*. Edinburgh: Edinburgh University Press.

Brown, P. & S. C. Levinson. 1987. *Politeness: Some universals in language usage*. Oxford: Oxford University Press.

Bytheway, J. 2015. A taxonomy of vocabulary learning strategies used in massively multiplayer online role-playing games. *CALICO Journal* 32(3). 508–527.

Collentine, K. 2010. Measuring complexity in task-based synchronous computer-mediated communication. In M. Thomas & H. Reinders (eds.), *Task-based language learning and teaching with technology*, 105–130. London: Continuum.

Cope, B. & M. Kalantzis. 2009. "Multiliteracies": New literacies, new learning. *Pedagogies* 4. 164–195.

Firth, A. & J. Wagner. 1997. On discourse, communication, and (some) fundamental concepts in SLA research. *Modern Language Journal* 81(3). 285–300.

Fitze, M. 2006. Discourse and participation in ESL face-to-face and written electronic conferences. *Language Learning & Technology* 10(1). 67–86. http://llt.msu.edu/vol10num1/fitze/(9 April, 2017.)

Garcia, A. C. & J. B. Jacobs. 1999. The eyes of the beholder: Understanding the turn-taking system in quasi-synchronous computer-mediated communication. *Research on Language & Social Interaction* 32(4). 337–367.

Garrison, D. R., T. Anderson & W. Archer. 2001. Critical thinking, cognitive presence, and computer conferencing in distance education. *American Journal of Distance Education* 15(1). 7–23.

González-Lloret, M. 2011. Conversation analysis of computer-mediated communication. *CALICO Journal* 28(2). 308–325.

Grice, H. P. 1975. Logic and conversation. In P. Cole & J. Morgan (eds.), *Syntax and semantics vol. 3: Speech acts*, 41–59. New York: Academic Press.

Guth, S. & F. Helm. 2010. *Telecollaboration 2.0: Language, literacies and intercultural learning in the 21st century*. London: Peter Lang.

Hampel, R. & U. Stickler. 2005. New skills for new classrooms: Training tutors to teach languages online. *Computer Assisted Language Learning* 18(4). 311–326.

Hampel, R. & U. Stickler. 2012. The use of videoconferencing to support multimodal interaction in an online language classroom. *ReCALL* 24(2). 116–137.

Hanff, H. 2002. *84 Charing cross road*. London: Virago.

Hassan, X., D. Hauger, G. Nye & P. Smith. 2005. *The use and effectiveness of synchronous audiographic conferencing in modern language teaching and learning (online language tuition): A systematic review of available research*. London: EPPI-Centre, Social Science Research Unit, Institute of Education, University of London.

Helm, F. 2015. The practices and challenges of telecollaboration in higher education in Europe. *Language Learning & Technology* 19(2). 197–217. http://llt.msu.edu/issues/june2015/helm.pdf(9 April, 2017.)

Hoven, D. 2006. Communicating and interacting: An exploration of the changing roles of media in CALL/CMC. *CALICO Journal* 23(2). 233–256.

Hung, Y.-W. & S. Higgins. 2015. Learners' use of communication strategies in text-based and video-based synchronous computer-mediated communication environments: Opportunities for language learning. *Computer Assisted Language Learning* 29(5). 901–924.

Jager, S., M. Kurek & B. O'Rourke (eds.). 2016. *New directions in telecollaborative research and practice: Selected papers from the Second Conference on Telecollaboration in Higher Education*. Dublin: Research-publishing.net. https://doi.org/10.14705/rpnet.2016.telecollab2016.9781908416414(9 April, 2017.)

Kear, K., F. Chetwynd, J. Williams & H. Donelan. 2012. Web conferencing for synchronous online tutorials: Perspectives of tutors using a new medium. *Computers & Education* 58(3). 953–963.

Kern, R. G. 1995. Restructuring classroom interaction with networked computers: Effects on quantity and characteristics of language production. *Modern Language Journal* 79(4). 457–476.

Kötter, M. 2001. Developing distance language learners' interactive competence – Can synchronous audio do the trick? *International Journal of Educational Telecommunications* 7(4). 327–353.

Kozar, O. 2016. Perceptions of webcam use by experienced online teachers and learners: A seeming disconnect between research and practice. *Computer Assisted Language Learning* 29(4). 779–789.

Krämer, S. 2010. Was sind Kulturtechniken? Kleines Plädoyer für ein 'Handwerk des Geistes'. *Schulmagazin* 5–10(9). 7–11.

Kramsch, C. 2006. From communicative competence to symbolic competence. *Modern Language Journal* 90(2). 249–252.

Kress, G. R. 2010. *Multimodality: A social semiotic approach to contemporary communication*. London: Routledge.

Lamy, M.-N. 2004. Oral conversations online: Redefining oral competence in synchronous environments. *ReCALL* 16(2). 520–538.

Lee, L. 2001. Online interaction: Negotiation of meaning and strategies used among learners of Spanish. *ReCALL* 13(2). 232–244.

Lee, L. 2002. Synchronous online exchanges: A study of modification devices on non-native discourse. *System* 30(3). 275–288.
Lewis, T. 2006. When teaching is learning: A personal account of learning to teach online. *CALICO* 23(3). 581–601.
Lin, W., H.-T. Huang & H.-C. Liou. 2013. The effects of text-based SCMC on SLA: A meta analysis. *Language Learning & Technology* 17(2). 123–142. http://llt.msu.edu/issues/june2013/linetal.pdf(9 April, 2017.)
Little, D. 1998. *Technologies, media and foreign language learning*. Dublin: Authentik.
Norton, B. 2013. *Identity and language learning: Extending the conversation*. Clevedon: Multilingual Matters.
O'Dowd, R. 2011. Intercultural communicative competence through telecollaboration. In J. Jackson (ed.), *Routledge handbook of language and intercultural communication*, 342–358. London: Routledge.
O'Dowd, R. 2016. Emerging trends and new directions in telecollaborative learning. *CALICO Journal* 33(3). 291–310.
O'Rourke, B. 2005. Form-focused interaction in online tandem learning. *CALICO Journal* 22(3). 433–466.
O'Rourke, B. 2008. The other C in CMC: What alternative data sources can tell us about text-based synchronous computer mediated communication and language learning. *Computer Assisted Language Learning* 21(3). 227–251.
O'Rourke, B. & K. Schwienhorst. 2003. Talking text: Reflections on reflection in computer-mediated communication. In D. Little, J. Ridley & E. Ushioda (eds.), *Learner autonomy in foreign language teaching: Teacher, learner, curriculum, assessment*, 47–60. Dublin: Authentik.
O'Rourke, B., C. Prendergast, L. Shi, B. Smith & U. Stickler. 2015. Eyetracking in CALL – Present and future. In A. Gimeno Sanz, M. Levy, F. Blin & D. Barr (eds.), WorldCALL: *Sustainability and Computer-Assisted Language Learning*, 285–298. London: Bloomsbury.
Oztok, M., D. Zingaro, C. Brett & J. Hewitt. 2013. Exploring asynchronous and synchronous tool use in online courses. *Computers and Education* 60(1). 87–94.
Panichi, L. 2015. A critical analysis of learner participation in virtual worlds: How can virtual worlds inform our pedagogy? In F. Helm, L. Bradley, M. Guarda & S. Thouësny (eds.), *Critical CALL – Proceedings of the 2015 EUROCALL Conference, Padova, Italy*, 464–469. Dublin: Research-publishing.net. https://doi.org/10.14705/rpnet.2015.9781908416292(9 April, 2017.)
Payne, J. S. & P. J. Whitney. 2002. Developing L2 oral proficiency through synchronous CMC: Output, working memory, and interlanguage development. *CALICO Journal* 20(1). 7–32.
Perkins, C. & E. Murphy. 2006. Identifying and measuring individual engagement in critical thinking in online discussions: An exploratory case study. *Educational Technology & Society* 9(1). 298–307.
Peterson, M. 2010. Task-based language teaching in network-based CALL: An analysis of research on learner interaction in synchronous CMC. In M. Thomas & H. Reinders (eds.), *Task-based language learning and teaching with technology*, 41–62. London: Continuum.
Rosell-Aguilar, F. 2006. Online tutorial support in open distance learning through audio-graphic SCMC: Tutor impressions. *JALT-CALL Journal* 2(2). 37–52.
Satar, H. M. 2010. *Social presence in online multimodal communication: A framework to analyse online interactions between language learners*. Milton Keynes: Open University Ph.D. thesis.

Satar, H. M. 2015. Sustaining multimodal language learner interactions online. *CALICO Journal* 32(3). 480–507.
Satar, M. & N. Özdener. 2008. The effects of synchronous CMC on speaking proficiency and anxiety: Text versus voice chat. *Modern Language Journal* 92(4). 595–613.
Sauro, S. 2011. SCMC for SLA: A research synthesis. *CALICO Journal* 28(2). 369–391.
Schegloff, E. 1992. Repair after next turn: The last structurally provided defense of intersubjectivity in conversation. *American Journal of Sociology* 97(5). 1295–1345.
Shield, L., M. Hauck & M. Kötter. 2000. Taking the distance out of distance learning. In P. Howarth & R. Herrington (eds.), *EAP learning technologies*, 16–27. Leeds, England: University Press.
Short, J., E. Williams & B. Christie. 1976. *The social psychology of telecommunications*. London: Wiley.
Smith, B. 2005. The relationship between negotiated interaction, learner uptake, and lexical acquisition in task-based computer-mediated communication. *TESOL Quarterly* 39(1). 33–58.
Smith, B. 2010. Employing eye-tracking technology in researching the effectiveness of recasts in CMC. In F. M. Hult (ed.), *Directions and prospects for educational linguistics*, 79–97. London: Springer.
Smith, B., M. J. Alvarez-Torres & Y. Zhao. 2003. Features of CMC technologies and their impact on language learners' online interaction. *Computers in Human Behavior* 19(6). 703–729.
Smith, B. & G. J. Gorsuch. 2004. Synchronous computer mediated communication captured by usability lab technologies: New interpretations. *System* 32(4). 553–575.
Stickler, U. & R. Hampel. 2015. Transforming teaching: New skills for online language learning spaces. In R. Hampel & U. Stickler (eds.), *Developing online language teaching: Research-based pedagogies and reflective practices*, 63–77. Basingstoke: Palgrave Macmillan.
Stickler, U. & M. Hauck. 2006. What does it take to teach online? Towards a pedagogy for online language teaching and learning. [Special issue]. *CALICO Journal* 23(3).
Stickler, U. & L. Shi. 2013. Supporting Chinese speaking skills online. *System* 41(1). 50–69.
Stickler, U. & L. Shi. 2015. Eye movements of online Chinese learners. *CALICO Journal* 32(1). 52–81.
Stockwell, G. 2007. A review of technology choice for teaching language skills and areas in the CALL literature. *ReCALL* 19(2). 105–120.
Stockwell, G. 2010. Effects of multimodality in computer-mediated communication tasks. In M. Thomas & H. Reinders (eds.), *Task-based language learning and teaching with technology*, 83–104. London: Continuum.
Thomas, M. & H. Reinders. 2010. *Task-based language learning and teaching with technology*. London: Continuum.
Thorne, S. L. 2015. Mediated life activity, double stimulation, and the question of agency. *Learning, Culture and Social Interaction* 4. 62–66.
Thorne, S. L., R. W. Black & J. M. Sykes. 2009. Second language use, socialization, and learning in internet interest communities and online gaming. *Modern Language Journal* 93. 802–821.
Thorne, S. L. & J. Reinhardt. 2008. "Bridging activities," new media literacies, and advanced foreign language proficiency. *CALICO Journal* 25(3). 558–572.
Thorne, S. L., S. Sauro & B. Smith. 2015. Technologies, identities, and expressive activity. *Annual Review of Applied Linguistics* 35. 215–233.

Tomasello, M., B. Hare, H. Lehmann, & J. Call. 2007. Reliance on head versus eyes in the gaze following of great apes and human infants: the cooperative eye hypothesis. *Journal of Human Evolution* 52(3). 314–320.
Tomasello, M. 2014. *A natural history of human thinking*. Cambridge, MA: Harvard University Press.
Toyoda, E. & R. Harrison. 2002. Categorization of text chat communication between learners and native speakers of Japanese. *Language Learning & Technology* 6(1). 82–99.
Tu, C. H. & M. McIsaac. 2002. The relationship of social presence and interaction in online classes. *American Journal of Distance Education* 16(3). 131–150.
Van Lier, L. 1994. Language awareness, contingency, and interaction. *AILA Review* 11. 69–82.
Van Lier, L. 1996. *Interaction in the language curriculum: Awareness, autonomy, and authenticity*. London: Longman.
Walther, J. B., B. Van Der Heide, A. Ramirez, J. K. Burgoon & J. Peña. 2015. Interpersonal and hyperpersonal dimensions of computer-mediated communication. In S. S. Sundar (ed.), *The handbook of the psychology of communication technology*, 3–22. Chichester: Wiley.
Wang, Y. 2004. Distance language learning: Interactive fourth-generation internet-based videoconferencing. *CALICO* 21(2). 373–395.
Wang, Y. & N.-S. Chen. 2009. Criteria for evaluating synchronous learning management system: Arguments from the distance language classroom. *Computer Assisted Language Learning* 22(1). 1–18.
Weininger, M. J. & L. Shield. 2003. Promoting oral production in a written channel: An investigation of learner language in MOO. *Computer Assisted Language Learning* 16(4). 329–349.
Wigham, C. R. & T. Chanier 2013. Interactions between text chat and audio modalities for L2 communication and feedback in the synthetic world Second Life. *Computer Assisted Language Learning* 28(3). 260–283.
Wilson, D. & D. Sperber. 2012. *Meaning and relevance*. Cambridge: Cambridge University Press.
Yamada, M. & K. Akahori. 2007. Social presence in synchronous CMC-based language learning: How does it affect the productive performance and consciousness of learning objectives? *Computer Assisted Language Learning* 20(1). 37–65.
Yamada, M. & K. Akahori. 2009. Awareness and performance through self- and partner's image in videoconferencing. *CALICO Journal* 27(1). 1–25.
Yanguas, Í. 2010. Oral computer-mediated interaction between L2 learners: It's about time! *Language Learning & Technology* 14(3). 72–93.
Zhu, E. 2006. Interaction and cognitive engagement: An analysis of four asynchronous online discussions. *Instructional Science* 34(6). 451–480.
Ziegler, N. 2016. Synchronous computer-mediated communication and interaction. *Studies in Second Language Acquisition* 38(3). 553–586.

Bionotes

Breffni O'Rourke

Breffni O'Rourke is Assistant Professor in Applied Linguistics and Manager of Language Learning Technologies and Resources in Trinity College Dublin. His principal research

interests lie in the area of technologies and language learning, in particular synchronous online learner discourse. He has a particular interest in the use of eye-tracking to investigate online communication.

Ursula Stickler

Ursula Stickler is Senior Lecturer in German in the School of Languages and Applied Linguistics at the Open University, UK. Her research focuses on independent and technology enhanced language learning and teacher training. She has published widely in the areas of Tandem learning, teacher training for online teaching, qualitative and mixed methods for Computer Assisted Language Learning (CALL) research, and eyetracking. She is co-editor of System, the International Journal of Educational Technology and Applied Linguistics. She is also a Senior Fellow of the Higher Education Academy, UK.